

20. A base station as claimed in claim 19, wherein the second radio interface means includes one or more radio interface cards coupled through a transmitter and receiver to a high gain antenna.

21. A base station as claimed in claim 20, wherein the one or more radio interface cards are connected to a combiner which in turn is connected to the transmitter and receiver.

Sub 5 22. A base station as claimed in claim 21, wherein the high gain antenna is 36 to 42 db.

ATM 23. A base station as claimed in claim 22, wherein the switching system is an ATM switch.

add 24. A cellular, broadband wireless communications network, comprising:
a plurality of base stations defining respective cells of the wireless communications network, each of said base stations being characterized by a switching system equipped with first and second radio interface means;
the first radio interface means supporting communications between the base station and network interface units within its cell; and
the second radio interface means supporting intercell links whereby the base stations of respective cells communicate.

25. A cellular, broadband wireless communications network as claimed in claim 24, wherein the second radio interface means includes one or more radio interface cards coupled through a transmitter and receiver to a high gain antenna. --

REMARKS

A reference numeral correction on page 6 has been introduced. This does not constitute new subject matter.

The drawings have been amended in order to add descriptive legends and to include reference number 66 in Figure 6 as required by the Examiner. It is respectfully requested that the requirement to submit formal drawings including the requested amendments be deferred until issuance of a Notice of Allowability.

Claims 1, 8, 12, 13 and 14 have been amended and claims 19 to 25 have been added. Claims 1 through 25 are now in the application. Reexamination and reconsideration of the application, as amended, are requested.

Claims 1 and 5 stand rejected under 35USC102 (b) as being anticipated by Ugland et al (US Patent 5,581,548). Reconsideration of this rejection in view of the following discussion is respectfully requested.

The present invention relates to a broadband wireless system in which a large geographical area is divided into a plurality of overlapping, substantially circular cellular areas or cells. Each cellular area has a base station typically at the center of the cell for radio communication with customer sites located within the cell. Generally, the customer sites will be at a fixed location and, in any event, will remain within its specified cell.

Each base station is provided with an interface unit such as an ATM radio interface card (ARIC) which, according to the present invention serves a dual role. First, the radio interface card communicates via a transceiver with network interface units (NIUs) at customer sites in a bi-directional manner. Communication from the base station to the NIUs is implemented by a point-to-multipoint protocol and from each NIU to its associated base station by a point-to-point protocol. According to the invention each NIU at a customer site may be connected to end user work stations for the purpose of receiving and transmitting data including voice and video. The second role of the ARIC is to communicate via a radio intercell link with base stations in adjacent cells. The intercell radio links can be in a ringed or a meshed configuration as shown in Figures 2 and 3 of the present application. A designated base station within the ringed or meshed configuration is, typically, in communication with a network manager by known means such as a radio link or a terrestrial link. The network manager controls access to the cellular network and to the public telephone switching network or Internet, etc.

US Patent 5,581,548 to Ugland et al relates generally to a system and a method for improving user access to network bandwidth. This involves a medium access control (MAC) algorithm for use in spreading interference from a number of

voice calls amongst all on-line users. A coded channel-hopping scheme is utilized in order to reduce interchannel interference.

In the Examiner's reason for rejecting claims 1 and 5 he has indicated that Ugland et al discloses "a cell in a cellular TDMA mobile radio system having a base station in the center and omnidirectional antennas and many mobile stations communicate with base stations by transmission of radio signals". The Examiner further indicates that "the base stations (BSs) are movable within a cell and from one to another". Although this passage is taken from US Patent 5,581,548 at column 7, line 61, it is believed that Ugland et al meant to state "the MSs (Mobile stations) are movable within a cell and from one cell to another". In this regard it is noted that according to Ugland et al a mobile switching center "is connected to all the BSs by cables or any other fixed means". Clearly, if the base stations were movable then fixed means would not be suitable.

The standard for anticipation as stated for example in *Scripps Clinic*, (927F.2d at 1576) is fairly strict:

"... anticipation requires that all of the elements and limitations of the claim are found within a single prior art reference... there must be no difference between the claimed invention and the referenced disclosure as viewed by a person of ordinary skill in the field of the invention."

It is respectfully submitted that claim 1, as amended herein, is not anticipated by US Patent 5,581,548 to Ugland et al. Ugland does not teach or even suggest a bi-directional radio access link for intercell communication between base stations in adjacent cellular areas. In fact, Ugland makes no reference to any form of intercell communication other than through the mobile switching center (MSC) as clearly shown in Figure 1 of the patent. In this figure, the MSC is

connected by a fixed link which may be a radio connection to each the base stations B1, B3, B4, etc. Furthermore, claim 5 which is also rejected under 35USC103 defines the customer sites as being at a fixed location within the cellular area. Ugland does not teach or remotely suggest a network interface unit at a fixed location.

Accordingly, it is respectfully submitted that US Patent 5,581,548 to Ugland et al does not contain all of the elements and limitations of claim 1, as amended herein, and claim 5 as originally filed. Accordingly, it is submitted that the rejection under 35USC103 is traversed.

Claims 3, 8 and 14 stand rejected under 35USC103(a) as being unpatentable over Ugland et al and further in view of Anderson et al (US Patent 5,768,264). With respect, it is submitted that a review of the Anderson reference, in particular Figures 1C and 4, clearly show that each base station 104 (406) is linked directly to the base station controller (BSC) 105 and not to each other as defined in the claims in the present application. Additionally, Anderson relates specifically to a mobile application in an ISDN format and does not disclose an ATM application as defined in the present application.

Claim 2 stands rejected under 35USC103(a) as being unpatentable over Ugland et al. It is respectfully submitted for the reasons set out above that claim 2 is not obvious in view of Ugland et al.

Claims 4 and 17 stand rejected under 35USC103(a) as being unpatentable over Ugland et al. Again, for the reasons listed in detail above, it is respectfully submitted that claims 4 and 17 define subject matter not disclosed or suggested by Ugland. It is further submitted that the aspects of the invention defined in claims 4 and 17 were not obvious at the time the invention was made in light of the teachings of Ugland et al.

Claims 6, 7, 9, 10, 15 and 16 stand rejected under 35USC103(a) as being unpatentable over Ugland et al and Anderson et al and further in view of Dixon (US Patent 5,640,674). It is respectfully submitted that Dixon does not disclose or suggest in any way an intercell link between base stations.

Claim 12 stands rejected under 35USC112 as being indefinite. It is respectfully submitted that claim 12 has now been amended in a manner which overcomes the Examiner's rejection.

Additionally, claim 12 together with claims 13 and 18 stand rejected under 35USC103(a) as being unpatentable over Ugland et al, Anderson et al and Dixon and further in view of Shaeffer et al (US Patent 5,455,821). It is respectfully submitted that Shaeffer et al which relates to the method of allocating communication resources in a communication system, when combined with the aforementioned cited references, does not disclose or suggest a communication system in which base stations in cellular areas communicate with each other by way of bi-directional radio intercell links for the purpose of system control and network management.

It is respectfully submitted that the additional references provided by the Examiner but not specifically cited against any of the claims do not anticipate nor render the present invention obvious in light thereof. Although the Sakamoto et al reference (US Patent 5,408,514) shows intercell links, the system applies to a mobile radio communication network and the base station-to-base station links are by fixed transmission lines. This reference does not refer to a broadband digital network employing intercell radio links between interface cards at the base stations.


New claims 19 to 25 define alternate aspects of the present invention not previously claimed. These additional claims are fully supported by the specification as originally filed. Furthermore, the subject matter of the new claims

is not described or suggested by the prior art made of record by the Examiner whether taken separately or in combination.

Our check of today's date in the sum of US \$246.00 covers the additional fees associated with the additional claims including two new independent claims.

In view of the above, it is submitted that the claims are in condition for allowance. Reconsideration of the rejection and objections is requested. Allowance of claims 1 to 25 at an early date is solicited. If the Examiner has any minor objections that could be dealt with on the telephone, he is respectfully requested to telephone the undersigned.

Respectfully submitted,

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